UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/561,444	12/20/2005	Yuso Tomohira	Q92094	6406

23373 7590 09/26/2011

SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER	
SUTTON, DARRYL C	

ART UNIT	PAPER NUMBER
1612	

NOTIFICATION DATE	DELIVERY MODE
09/26/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

sughrue@sughrue.com
PPROCESSING@SUGHRUE.COM
USPTO@SUGHRUE.COM

Office Action Summary	Application No.	Applicant(s)	
	10/561,444	TOMOHIRA, YUSO	
	Examiner	Art Unit	
	DARRYL C. SUTTON	1612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 September 2011*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *1-35* is/are pending in the application.

5a) Of the above claim(s) *1-20,31 and 32* is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *21-30 and 33-35* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☒ The drawing(s) filed on *01 September 2011* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

12)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *08/04/2011*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 09/01/2011 has been entered. New claims 34 and 35 have been added.

Applicant's arguments filed 09/01/2011 have been fully considered. Rejections and/or objections not reiterated from previous Office Actions are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set of rejections and/or objections presently being applied to the instant application.

Claim Rejections - 35 USC § 103

1) Claims 21-24, 28-30 and 33 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Akiyama et al. (US 5,593,690) in view of British Plastics and Rubber (2001) as evidenced by Lochtech ApS., and the rejection is applicable to new claims 34 and 35.

Akiyama et al. is discussed previously, as it discloses a matrix preparation for dispersing an active ingredient which is comprised of the instantly claimed fatty acid

esters of polyglycerol and other claimed excipients as a matrix material which is granulated. The method of instant claim 23 is taught. The granules of the matrix material are coated by any known method at temperatures which overlap the melting points of the fatty acid esters of polyglycerols. The resulting compositions no dot possess any static charge. See pages 2-4, Final office action dated 02/02/2011. Akiyama et al. do not teach a method of fusion coating, the hydroxyl value of the matrix materials, the specific triglycerol behenic acid half ester or an agitation method.

British Plastics and Rubber and Lochtec ApS are discussed previously, as together they disclose a mixer designed for both mixing, granulating and coating of powders which provides exceptional heating and cooling capabilities.

British Plastics and Rubber does not teach a sustained release medicament particle.

At the time of the invention, it would have been obvious to use a triglycerol diester of behenic acid, i.e. a polyglycerol fatty acid half ester, since the fatty acid esters of polyglycerols disclosed by Akiyama et al. include polyester compounds such as a diester comprised of a triglycerol of a fatty acid, i.e. behenic acid, to create ester linkages.

Since the granules of Akiyama et al. are comprised of substantially the same components as the instant invention, the base material, i.e. the triglycerol diester of behenic acid, would reasonably be expected to possess the same hydroxyl value.

At the time of the invention, it would have been obvious to use the Cyclomix 5 of British Plastics and Rubber to produce the particles of Akiyama et al. since it would be

able to perform both the granulation and coating steps, thereby eliminating the need and cost for two pieces of manufacturing equipment and since Akiyama et al. teaches that the coating can be done by any per se known method. The intensive mixing action provided by the Cyclomix 5 would reasonably be interpreted as an agitation method during the coating step.

In regard to claim 23, the prior art does not teach the specific temperature of the particulate coating. The prior art does not disclose the exact claimed values, but does overlap: in such instances even a slight overlap in range establishes a *prima facie* case of obviousness. In re Peterson, 65 USPQ2d 1379, 1382 (Fed. Cir. 2003). Akiyama et al. teach that the coating is done at a temperature from 25° to 70°C, and the fatty acid ester of a polyglycerol matrix base material melts at a temperature from 40° to 150°C, versus fusion coating performed at a temperature in the vicinity of the melting point of the matrix base material of the instant claim.

Applicant argues that Ayikama discloses in Examples 23 and 24 spraying an aqueous solution using a fluid-bed drier to form a coating, and nowhere teaches a fusion coating of the present invention. The Examiner has not confirmed whether the original document for British Plastics and Rubber has the same content as the abstract on the website. LochTec ApS discloses that the design prevents material fusion. This indicates that the mixer precludes fusion coating of particles, i.e. teaches away from fusion coating. There is no recognition of problems during fusion coating such as the occurrence of electro static adhesion of core particles. Although Akiyama discloses a polyglycerol fatty acid ester, a person skilled in the art would never select, with an

expectation of success, a matrix base material having a specific hydroxyl value, without recognizing the problem during fusion coating.

The Examiner disagrees.

A prior art reference is evaluate for all that it reasonably suggests and is not limited by preferred embodiments or working examples. Akiyama clearly discloses that the coating is by any known method and at temperatures that overlap the melting point of the polyglycerol fatty acid esters. The Examiner is not required to confirm whether the contents of the website are the same as the articles in British Plastics and Rubber as the posted article on the website represents prior art and is therefore available to make a 103 obviousness rejection. Since *prima facie* obviousness has been established, it is Applicant's responsibility to determine that there is some deficiency in the prior art. Despite Applicant's allegation, the disclosure of LochTec ApS can reasonably be interpreted as fusion or agglomeration of coated particles is prevented, since LochTec ApS clearly discloses coating of particles and the capability of coating particles under heated or cooled conditions. Since fusion coating is coating of particles at temperatures around that of the melting point of the core, the disclosure of LochTec does not teach away from fusion coating. Akiyama et al. clearly teach that the particles are comprised of polyglycerol fatty acid esters, diesters comprised of triglycerols with fatty acids such as behenic acid forming ester linkages, i.e. the compound of instant claim 29. It would reasonably be expected that the compound would possess the same hydroxyl value as claimed. Akiyama et al. clearly discloses methods that do not produce granules with a static charge. Accordingly, it would reasonably be expected

that uncharged particles are preferred; and it would have been within the purview of the skilled artisan to determine if the components and methods suggested by combining Akiyama et al. and British Plastics and Rubber produced uncharged particles. If charged particles were produced, it would have been within the purview of the skilled artisan to determine which matrix materials components would produce uncharged particles as required. Further since new claims 34 and 35 are drawn to a polyglycerol behenic half ester, which is broader than the compound of claim 29, which is reasonably taught by the reference and cited by the Examiner in the rejection, the arguments of record read on the newly added claims.

Applicant argues that a characteristic feature of the present invention is fusion coating by agitation which achieves two remarkable effects: inhibition of adhesion of core particles to the wall surface of the agitator during coating; and production of particles of a matrix formulation having stable drug release properties. Test Example 5 and Figure 5 show that particles fusion coated by agitation are highly effective in controlling elution of drug, compared to particles fusion-coated by the fluid-bed method. Such remarkable effects cannot be expected from the disclosure of Akiyama, which is silent to fusion coating or from British Plastics Rubber which teaches away from fusion of material.

The Examiner disagrees.

Applicant's argument appears to be an allegation of surprising and unexpected results. However, the British Rubber and Plastic clearly discloses that the mixer provides heating and prevents agglomeration, and fusion of particles and of coated

particles. As discussed by Applicant, Applicant's own specification discloses that fluid bed coating at heated conditions leads to particle fusion and agglomeration, i.e. formation of clusters. Applicants have not disclosed that this was a novel phenomenon revealed during their research, i.e. it is art recognized. Uniformly coated particles would reasonably be expected to produce stable release of active since the uniformly coated particles would elute active at the same rate versus agglomerates which would release actives at varying rates. Accordingly, the skilled artisan would recognize that a method of coating which prevents agglomeration would produce particles which would possess stable, enhanced release of active versus particles coated in a fluid bed reactor. This would provide further motivation for modifying the method of Akiyama et al. to use the mixer/granulator/coating apparatus of British Rubber and Plastics with a reasonable expectation of success.

2) Claims 25-27, Akiyama et al. and British Plastics and Rubber as applied to claims 21-24, 28-30 and 33 above, and further in view of Kojima et al. (J. Controlled Rel., 2002).

Akiyama et al. and British Plastics and Rubber are discussed *supra*.

Akiyama et al. and British Plastics and Rubber do not teach a heat treatment before or after the coating step.

Kojima et al. is discussed previously as it discloses that heating a coated particle, annealing, leads to alterations of the release properties of the coated particles by varying the pellet structure.

Kojima et al. do not teach a matrix pellet core particle containing an active substance and a matrix base material that has a hydroxyl value of 60 or greater.

At the time of the invention, it would have been obvious to modify the method suggested by combining Akiyama et al. and British Plastics and Rubber to include the step of annealing at a temperature that softens the core, i.e. heat treatment, before or after coating since it is a method of providing the granules with controlled release properties. Since both the method of Kojima et al. and the method suggested by combining Akiyama et al. and British Plastics and Rubber are methods of preparing controlled release particles a combination of the methods would be expected to further control the release of active from the granules.

Since Kojima et al. teach that softening of the polymer in the core causes morphological changes that result in reduced porosity and decreased release rates and prolongation of release times, it would have been obvious to optimize the release of active by varying the annealing temperature, and thereby varying the degree of softening of the core. It would have been obvious to use the temperatures near the softening point or melting point of the polymer as a reference for the appropriate annealing temperature and it would have been within the purview of the skilled artisan to determine the softening point and/or melting point.

Applicant argues that Kojima et al. does not cure the deficiencies of Akiyama et al. and British Plastics and Rubber.

The Examiner disagrees.

The Examiner's response to Applicant's arguments concerning Akiyama et al. and British Plastics and Rubber is provided *supra*. Accordingly, Kojima et al. is only required to provide motivation for combining with Akiyama et al. and British Plastics and Rubber. Since Kojima et al. teach that the method of annealing helps to control the release of active from a coated particle, it provides adequate motivation for combining with Akiyama et al. and British Plastics and Rubber.

No claims are allowed.

Conclusion

All claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the application prior to entry under 37 CFR 1.114. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action after the filing of a request for continued examination and the submission under 37 CFR 1.114. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Darryl C. Sutton whose telephone number is (571)270-3286. The examiner can normally be reached on M-Th from 7:30AM to 5:00PM EST or on Fr from 7:30AM to 4:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frederick Krass, can be reached at (571)272-0580. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

/Darryl C Sutton/
Examiner, Art Unit 1612

/Frederick Krass/
Supervisory Patent Examiner, Art Unit 1612